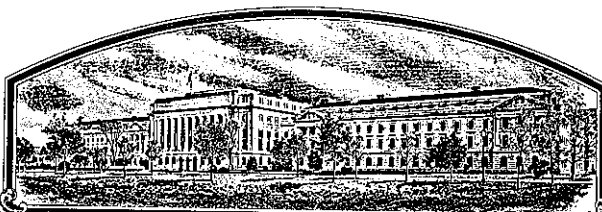


No.



8000068

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Mississippi Agricultural and
Forestry Experiment Station
Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS OF THE VARIETY. THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COWPEA

'Mississippi Cream'

In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington
this 26th day of March in
the year of our Lord one thousand nine
hundred and eighty-four.

Attest:

Kenneth H. Evans
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R. Block
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY CR766 and CR776		1b. VARIETY NAME Mississippi Cream		FOR OFFICIAL USE ONLY PV NUMBER 8000068	
2. KIND NAME Cowpea		3. GENUS AND SPECIES NAME Vigna sinensis L. Endl. ex Hassk.		FILING DATE 3/6/80	TIME 9:30 <u>A.M.</u> P.M.
4. FAMILY NAME (BOTANICAL) Leguminosae		5. DATE OF DETERMINATION August 10, 1977		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 2/6/80 3/12/84
6. NAME OF APPLICANT(S) Woodrow W. Hare		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) Dept. of Plant Pathology & Weed Science P.O. Drawer PG Mississippi State, MS 39762		8. TELEPHONE AREA CODE AND NUMBER 2390 (601) 325-3138	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Mississippi Agricultural and Forestry Experiment Station		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION		11. DATE OF INCORPORATION	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Mississippi Foundation Seed Stocks Box 5267 Mississippi State, MS 39762					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☐ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☒ YES ☐ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

Nov 30 1979
(DATE)

Woodrow W. Hare
(SIGNATURE OF APPLICANT)

1-18-80
(DATE)

[Signature]
(SIGNATURE OF APPLICANT)

0861 MAR 6

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.
- 14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

EXHIBIT A, ORIGIN AND BREEDING HISTORY OF THE VARIETY

Mississippi 49S1 was one of about 5 survivors in a one-half acre field planted to the Brown Sugar Crowder variety in 1949 near Columbia, Mississippi. All other plants in the field (approximately 24,000) were killed by *Fusarium* wilt before fruiting. Most of the survivors were "field" or hard-seeded types and were discarded. M49S1 had some of the characteristics of Brown Sugar Crowder. From continued selfing and selection of progeny of M49S1, several types of protepea (cowpea) were stabilized. After the discovery that resistance to *Fusarium* wilt organisms, root-knot nematodes, and tolerance to many viruses of protepea was also segregating in the progeny, selection pressure was continually applied for those traits. It is presumed that this treasure of material originated from a natural cross of Brown Sugar Crowder and Iron. M755 was one of the stabilized lines that had the resistance and tolerance factors, bean-shaped and tan-colored seed, and was nearest of the 8 stabilized lines to the type desired in a resistant and tolerant cream protepea.

M755 was crossed (C21) to Long Pod Cream in the fall of 1957 and the F_1 backcrossed (BC10) to M755 in spring, 1958. The backcross progenies were selected in the field annually for type and virus tolerance and tested annually in the greenhouse for wilt and root-knot nematode resistance. A selection from the sixth generation (CR1-4-1) was crossed (C37) to White Acre in fall, 1961. After 7 generations of the same types of selection pressure, the best available line (CR66-9-7-20) was crossed (C46) to Mississippi Silver in fall, 1967. Ten generations of the same selection pressure (type, virus tolerance, *Fusarium* resistance, and nematode resistance)

led to a bulk seed lot in 1976 from C465-34-1 that was labeled CR766B. Variety and yield trials were conducted with CR766B and a later increase, CR776B. The increase from CR776B is the new variety Mississippi Cream.

No variants have been observed during mass multiplication from C465-34-1. Early increases of small size were made in research plots where many other types of protepea were present. An occasional bumblebee cross occurred. Results of these were rogued by plant type and close inspection of planting seed before large increases in isolated fields were begun. In the 10 generations from C46, seed from each selfed plant rated for type and virus tolerance was used in the greenhouse for wilt and nematode tests and remnant seed from the best ^{LOTS} ~~lost~~ returned to *Est 4/27/82* field plots the next season. There were no discernable differences in plant type after the seventh generation. Ratings on yield were made by weighing production of dry seed from one 125-foot row in generations 8-10. C465-34-1 was superior in yield to other sister lines.

From the single plant C465-34-1, the stock has remained highly stable in the research plots, increase fields, and at the variety-trial locations.

EXHIBIT B, NOVELTY STATEMENT

The novelty of Mississippi Cream lies in (1) plant type, (2) appearance of dry seed, and (3) disease resistance.

(1) Plant type -- Under average growing conditions Mississippi Cream runs more vigorously than most creams with small-diameter vines continuing vigorous growth in later stages. Long peduncles, pendant long pods with pods at or above foliage, and medium-sized green-mature seed are usually associated in other creams with more robust vines in early growth and much less of the late small-vine growth.

(2) Dry seed -- The dry seed are small, very small in relation to the green-mature seed, smooth, and under average conditions have very little cracking of the seed coat around the hilum or around the circumference radiating from the hilum.

(3) Disease resistance -- All the cream varieties we have tested are susceptible to many of the destructive virus diseases occurring in this area. A few (notably Conch) are resistant to root-knot nematodes, and a few have resistance to Race 1 of Fusarium oxysporum f. sp. tracheiphilum. There were no combinations of resistance and tolerance found.

Mississippi Cream has tolerance to all the destructive viruses that occur at five scattered locations of variety-test sites in Mississippi. Texas Cream 40, used as the standard commercial comparison, was damaged severely at all locations. Mississippi Cream is resistant to all of the common root-knot nematodes in the U.S. except Meloidogyne hapla which was not encountered at the test locations. Mississippi Cream is highly resistant to all 3 of the known Races of the Fusarium responsible for Fusarium wilt.

The accompanying photos illustrate some of the resistance under controlled conditions. No wilt or nematode attack was seen in the test plots over a period of 4 years and no damage to yield from virus diseases occurred.

Mississippi Cream is most similar to Long Pod Cream (No. 54 in L.L. Ligon's "Characteristics of Cowpea Varieties") which was one of the original parents. The pods and seed are quite similar. Differences are that Mississippi Cream pods are mostly straight compared to slightly curved for Long Pod Cream and the dry seed of Mississippi Cream have much less cracking of the testa. The plants of Mississippi Cream are more virogous, particularly in late growth, and drought resistance is much higher than for Long Pod Cream (a product of the tolerance and resistance to diseases).

The major difference in the two varieties is in disease resistance and tolerance as shown below:

		<u>Mississippi Cream</u>	<u>Long Pod Cream</u>
1.	<u>Fusarium oxysporum</u> f. sp.		
	<u>trachephilum</u> Race 1 -----	Resistant (2 genes)	Resistant (1 gene)
	Race 2 -----	Resistant	Susceptible
	Race 3 -----	Resistant	Susceptible
2.	<u>Meloidogyne arenaria</u> -----	Resistant	Susceptible
	<u>Meloidogyne javanica</u> -----	Resistant	Susceptible
	<u>Meloidogyne incognita</u> -----	Resistant	Susceptible
3.	The large group of		
	damaging viruses in		
	Mid-south area -----	Tolerant	Susceptible













From the above susceptibility to the major diseases, it can be readily understood why Long Pod Cream has virtually disappeared.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
BELTSVILLE, MARYLAND 20705
OBJECTIVE DESCRIPTION OF VARIETY
(Cowpea)

INSTRUCTIONS: See Reverse

NAME OF APPLICANT(S) Woodrow W. Hare	VARIETY NAME OR TEMPORARY DESIGNATION Mississippi Cream
ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code) Department of Plant Pathology & Weed Science Mississippi Agricultural & Forestry Experiment Station Drawer PG, Mississippi State, MS 39762	FOR OFFICIAL USE ONLY PVPO NUMBER 8000068

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. or) when number is either 99 or less.

1. PLANT HABIT AT GREEN SHELL STAGE: <input type="text" value="2"/> 1 = ERECT 2 = SEMIERECT 3 = PROCUMBENT 4 = PROSTRATE		2. PLANT SIZE: <input type="text" value="2"/> <input type="text" value="8"/> CM. HIGH AT MATURITY	
3. STEM COLOR: <input type="text" value="1"/> 1 = GREEN 2 = PURPLE		4. NODE COLOR: <input type="text" value="1"/> 1 = GREEN 2 = PURPLE	
5. FOLIAGE: <input type="text" value="1"/> 1 = OPEN 2 = COMPACT		6. LEAF COLOR (See Reverse): <input type="text" value="1"/> 1 = LIGHT GREEN 2 = MEDIUM GREEN 3 = DARK GREEN	
7. LEAF SURFACE: <input type="text" value="1"/> 1 = SMOOTH 2 = BLISTERED		<input type="text" value="1"/> 1 = DULL 2 = GLOSSY	
8. FLOWER COLOR (See Reverse) <input type="text" value="4"/> 1 = PURPLE 2 = LAVENDER 3 = TINGED 4 = WHITE		9. FIRST FLOWERING <input type="text" value="4"/> <input type="text" value="1"/> NUMBER OF DAYS	
10. POD:			
<input type="text" value="2"/> PLACEMENT: 1 = BELOW FOLIAGE 2 = ABOVE FOLIAGE 3 = AT FOLIAGE LEVEL		<input type="text" value="2"/> LOCATION: 1 = SCATTERED 2 = BUNCHED	
<input type="text" value="1"/> <input type="text" value="9"/> CM. LONG <input type="text" value="1"/> <input type="text" value="0"/> MM. WIDE		<input type="text" value="1"/> CURVATURE: 1 = STRAIGHT 2 = CURVED	
<input type="text" value="2"/> CONstrictions: 1 = NONE 2 = SLIGHT 3 = DEEP		<input type="text" value="1"/> SURFACE (Green shell maturity): 1 = DULL 2 = GLOSSY	
<input type="text" value="2"/> COLOR (Green shell maturity): 1 = SILVER-GREEN 2 = GREEN 3 = LIGHT PURPLE 4 = DARK PURPLE			
<input type="text" value="2"/> COLOR (Dry maturity): 1 = WHITE 2 = STRAW 3 = DRAB 4 = PURPLE			
<input type="text" value="1"/> CROSS SECTION (Green shell stage-width/height): 1 = (1: <) 2 = (1: >) 3 = (1:1)			
11. SEED:			
<input type="text" value="1"/> <input type="text" value="5"/> NUMBER OF SEEDS PER POD		<input type="text" value="2"/> SHAPE (See Reverse): 1 = KIDNEY 2 = OVATE TO OVOID 3 = CROWDER 4 = GLOBOSE 5 = RHOMBOID	
<input type="text" value="0"/> <input type="text" value="7"/> MM. LONG		1 =  2 =  3 =  4 =  5 =  6 = 	
<input type="text" value="0"/> <input type="text" value="4"/> MM. WIDE		<input type="text" value="6"/> HILAR EYE TYPE:      	
<input type="text" value="1"/> <input type="text" value="0"/> <input type="text" value="5"/> GM. PER 1000 SEEDS		SPECKLED BLOTCH NARROW BIG SMALL VERY SMALL	
<input type="text" value="2"/> COAT: 1 = WRINKLED 2 = SMOOTH		<input type="text" value="1"/> COLOR PATTERN: 1 = SINGLE COLOR 2 = PATTERNED 3 = MARBLED 4 = SPECKLED	
<input type="text" value="0"/> PRIMARY COLOR (Single color or basic color): 1 = PURPLE 2 = BLACK 3 = DULL BLACK 4 = BLUE 5 = RED 6 = COFFEE 7 = MAROON 8 = BUFF OR CLAY 9 = PINK 0 = WHITE			
SECONDARY COLORS PRODUCING THE PATTERN, MARBLING OR SPECKLING (Enter a zero in boxes where the colors do not identify the secondary colors.):			
<input type="text" value="1"/> 1 = PURPLE	<input type="text" value="2"/> 2 = BLACK	<input type="text" value="3"/> 3 = DULL BLACK	<input type="text" value="4"/> 4 = BLUE
<input type="text" value="6"/> 6 = COFFEE	<input type="text" value="7"/> 7 = MAROON	<input type="text" value="8"/> 8 = BUFF	<input type="text" value="9"/> 9 = PINK
		<input type="text" value="5"/> 5 = RED	<input type="text" value="0"/> 0 = WHITE

12. DISEASE (0 = Not Tested, 1 = Susceptible, 2 = Resistant) T = Tolerant

<input type="checkbox"/> 2 FUSARIUM WILT	<input type="checkbox"/> 2 ROOT KNOT NEMATODE	<input type="checkbox"/> 1 CHARCOAL ROT	<input type="checkbox"/> 0 ZONATE LEAF SPOT
<input type="checkbox"/> 0 RED LEAF SPOT	<input type="checkbox"/> 1 POWDERY MILDEW	<input type="checkbox"/> T COWPEA CHLOROTIC MOTTLE VIRUS	<input type="checkbox"/> T SOUTHERN BEAN MOSAIC VIRUS
<input type="checkbox"/> T BEAN YELLOW MOSAIC VIRUS	<input type="checkbox"/> T CUCUMBER MOSAIC VIRUS	<input type="checkbox"/> T BEAN POD MOTTLE VIRUS	<input type="checkbox"/> 2 SOYBEAN CYST NEMATODE
<input type="checkbox"/> T COWPEA YELLOW MOSAIC VIRUS	<input type="checkbox"/> 0 BACTERIAL CANKER	<input type="checkbox"/> 1 CERCOSPORA LEAF-SPOT	<input type="checkbox"/> 0 STING NEMATODE
<input type="checkbox"/> 0 RUST	<input type="checkbox"/> 1 SOUTHERN BLIGHT	<input type="checkbox"/> 1 ROOT ROT	<input type="checkbox"/> OTHER (Specify) _____

13. INSECT (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

<input type="checkbox"/> 0 MEXICAN BEAN BEETLE	<input type="checkbox"/> 0 COWPEA APHID	<input type="checkbox"/> T COWPEA CURCULIO	<input type="checkbox"/> 0 STINK BUGS
<input type="checkbox"/> 0 LESSER CORNSTALK BORER	<input type="checkbox"/> 0 EUROPEAN CORNBORER	<input type="checkbox"/> 0 CORN EARWORM	<input type="checkbox"/> 0 BEET ARMYWORM
<input type="checkbox"/> 1 THRIPS	<input type="checkbox"/> 1 SERPENTINE LEAF MINERS	<input type="checkbox"/> OTHER (Specify) _____	

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant size	Mississippi Silver	Plant habit	Long Pod Cream
Pod size	Long Pod Cream	Plant pigmentation	Long Pod Cream
No. days to maturity	Mississippi Silver	Seed coloration	Long Pod Cream

INSTRUCTIONS

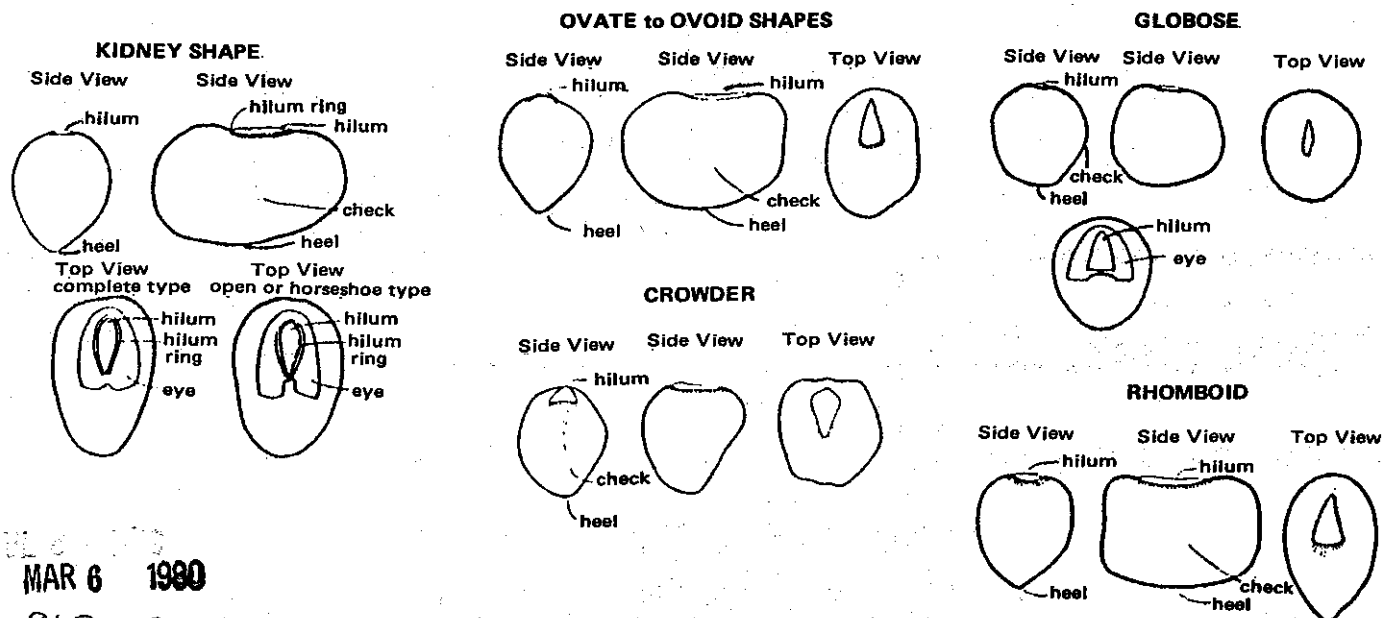
GENERAL: The following publications may be used as a reference aid for completing this form:

1. C. V. Piper, 1912, Agricultural Varieties of Cowpea and Related Species, U.S.D.A., Bulletin No. 229.
2. L. L. Ligon, 1958, Characteristics of Cowpea Varieties, Oklahoma State University, Bulletin B-518.
3. W. J. Spillman and W. J. Sando, 1929, Mendelian Factors in the Cowpea, papers of the Michigan Academy of Science, Arts and Letters, Vol. XI.

LEAF COLOR: Any recognized color chart may be used to determine the leaf color of the described variety. The following cowpea varieties may be used as a guide to identify colors listed:

1. Light Green - Texas Cream 40
2. Medium Green - Big Boy
3. Dark Green - California Blackeye #5.

FLOWER COLOR: White flower should be treated with a one percent solution of hydrochloric acid to determine if anthocyanin is present. If color appears as a result of the test, classify as tinged.

TERMS USED TO DESCRIBE SHAPES:

MAR 6 1980

9:30 am

EXHIBIT D, ADDITIONAL DESCRIPTION OF THE VARIETY

The primary characteristic of Mississippi Cream relating it to the cream type of protepea (cowpea) is the appearance of the seed. At dry stage they are small, with a small hilum, ovate in shape, smooth, and a light cream color. Perhaps the only difference between Mississippi Cream seed and many other medium-sized creams is much less cracking of the seed coat around the hilum area, and around the circumference of the seed, particularly the more recent cream varieties. This is not a distinguishing character since it is strongly influenced by weather and harvest conditions.

Upon planting, the seedling is small with small primary leaves, and the plants, compared to other types, appear weak until about 4-6 leaves are on the plant. Rapid growth then takes place with a bunchy appearance until the peduncles begin to form when they compare in vine vigor to any type. At this stage vines develop rapidly and lean into row middles with strong vine growth along the ground or procumbent. The peduncles come through this vine growth, are medium long and upright and produce the pods mostly clear of the vine. As the pods develop, the weight of the pods typically pulls the peduncles over to a 30°-40° angle from perpendicular. Total height and size of the plant will vary with soil type and weather conditions, from small to a massive vine. Runners from the small plant will cross the rows and those of large plants, with continued moisture, will grow up in small-diameter vines over the matured crop. Large or small, the peduncles extend up so that the primary crop of pods will be at or above the foliage level at first maturity.

The bloom is almost white with only a tinge of cream color. There is no



Figure 1. Mississippi Cream in fall trials at Truck Crops Branch Station, October 15, 1979.

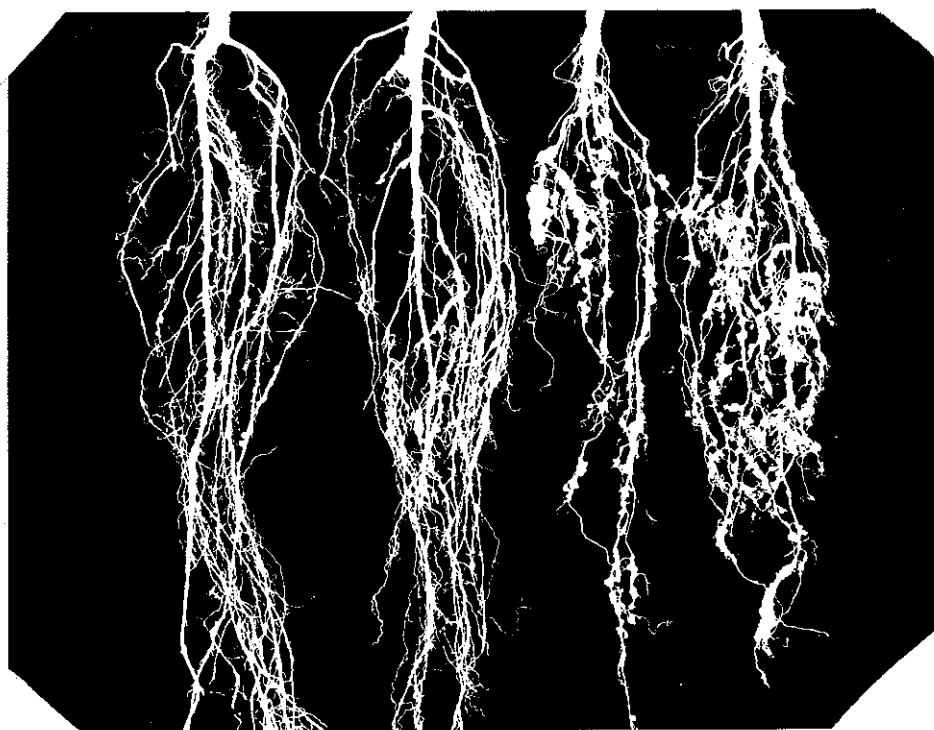


Figure 2. Mississippi Cream (left) and Texas Cream 40 (right) grown in greenhouse in soil containing inoculum of Meloidogyne incognita, the root-knot nematode most commonly found in soils of this area.

coloration (other than green) of nodes, internodes, or peduncles. The pods are slender early and increase to medium-size for protepea (10 mm). Length will average about 19 cm but although the diameter does not increase significantly, the length may average up to 24 cm with good growing conditions. They are straight and pendant from the peduncles. They turn from green slowly at green-maturity to almost white and then fade to straw color as they dry. The green-mature seed start from a bright light green which changes to cream with a tinge of green when the pod shell is almost white. They are kidney-shaped and surprisingly large for the size of the dry seed or about the size of green-mature Magnolia Blackeye.



Figure 3. Mississippi Cream (left of stake) and Texas Cream 40 (right) grown in greenhouse and inoculated with Fusarium oxysporum f. sp. tracheiphilum Race 1.



Figure 4. Mississippi Cream (left of stake) and Texas Cream 40 (right) grown in greenhouse and inoculated with Fusarium oxysporum f. sp. tracheiphilum Race 3. Results with Race 2 were the same as here with Race 3.